



# PUBLIC NOTICE

US Army Corps  
of Engineers  
New York District  
Jacob K. Javits Federal Building  
New York, N.Y. 10278-0090  
ATTN: Regulatory Branch

**In replying refer to:**

Public Notice Number: 2004-01322-YW  
Issue Date: February 11, 2005  
Expiration Date: March 13, 2005

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**To Whom It May Concern:**

The New York District, Corps of Engineers has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

**APPLICANT:** The City of New York Department of Environmental Protection  
59-17 Junction Boulevard  
Flushing, NY 11373-5108

**ACTIVITY:** Discharge fill materials into wetlands in conjunction with the construction of the Catskill/Delaware Ultraviolet Light Disinfection Facility and provide mitigation.

**WATERWAY:** Mine Brook, Hudson River

**LOCATION:** Town of Mount Pleasant and Greenburgh, Westchester County, New York.

A detailed description and plans of the applicant's activity are enclosed to assist in your review.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

**ALL COMMENTS REGARDING THE PERMIT APPLICATION MUST BE PREPARED IN WRITING AND MAILED TO REACH THIS OFFICE BEFORE THE EXPIRATION DATE OF THIS NOTICE.** otherwise, it will be presumed that there are no objections to the activity.

Any person may request, in writing, before this public notice expires, that a public hearing be held to collect information necessary to consider this application. Requests for public hearings shall state, with

**CENAN-OP-RE**  
**PUBLIC NOTICE NO. 2004-01322-YW**

particularity, the reasons why a public hearing should be held. It should be noted that information submitted by mail is considered just as carefully in the permit decision process and bears the same weight as that furnished at a public hearing.

Our preliminary determination is that the activity for which authorization is sought herein is not likely to affect any Federally endangered or threatened species or their critical habitat. However, pursuant to Section 7 of the Endangered Species Act (16 U.S.C. 1531), the District Engineer is consulting with the appropriate Federal agency to determine the presence of and potential impacts to listed species in the project area or their critical habitat.

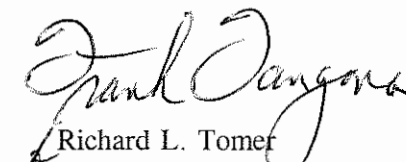
Based upon a review of the latest published version of the National Register of Historic Places, there are no known sites eligible for, or included in, the Register within the permit area. Presently unknown archeological, scientific, prehistorical, or historical data may be lost by work accomplished under the required permit.

Reviews of activities pursuant to Section 404 of the Clean Water Act will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 (b) of the Clean Water Act and the applicant will obtain a water quality certificate or waiver from the appropriate state agency in accordance with Section 401 of the Clean Water Act prior to a permit decision.

In addition to any required water quality certificate, the applicant has requested authorization from New York State Department of Environmental Conservation for the activity under consideration.

It is requested that you communicate the foregoing information concerning the activity to any persons known by you to be interested and who did not receive a copy of this notice. If you have any questions concerning this application, you may contact this office at (212) 264-3912 and ask for Frank Tangorra.

For more information on New York District Corps of Engineers programs, visit our website at <http://www.nan.usace.army.mil>

  
Richard L. Tomer  
Chief, Regulatory Branch

Enclosures

### WORK DESCRIPTION

The applicant, The City of New York Department of Environmental Protection (NYCDEP), has requested Department of the Army authorization to discharge fill materials into wetlands in conjunction with the construction of the Catskill/Delaware Ultraviolet Light Disinfection Facility and provide mitigation in Mine Brook at the Eastview site in the Towns of Mount Pleasant and Greenburgh, Westchester County, New York.

The work would involve the filling of approximately 3.1 acres of non-tidal wetlands to construct the Catskill/Delaware Ultraviolet Light Disinfection Facility (ULDF). Included in the fill is the estimation of 1.1 acres of floodplain forest wetland immediately north and west of the facility that would be indirectly impacted by groundwater dewatering operations.

Approximately 13 acres of wetlands would be created/enhanced on-site and off-site to mitigate the loss of the existing wetlands. West of Mine Brook/north of Route 100C approximately 1.4 acres would be created/enhanced on Eastview North parcel. Between and adjacent to Mine Brook wetlands approximately 6.1 acres would be created in Eastview south parcel. Near Route 22 in Town of North Castle approximately 5.5 acres would be created/enhanced. The on-site and off-site wetland enhancement and creation associated with the proposed project would replace existing poor quality habitat and degraded site conditions with diverse, native wetland plantings through the creation/enhancement of forested wetlands, wet meadows and emergent wetlands.


The No Action alternative would put New York City (NYC) in violation of the US Environmental Protection Agency's 2002 Filtration Avoidance Determination. Ten alternatives to the proposed facility were examined, including two alternative site for the facility and one alternative that explores the feasibility of locating the facility on a different part of the Eastview site. NYCDEP selected the Eastview Site for the ULDF because it would be the most appropriate site within the context of a long term comprehensive system improvement program being developed by NYCDEP. Locating the facility at Eastview site would position the facility downstream of a possible future filtration plant should NYCDEP ever be required to construct one, allowing filtered water to receive UVD treatment prior to being returned to the Catskill and Delaware Aqueducts. The facility is proposed for the southeast portion of the north parcel of the Eastview site. While this location would introduce a number of potential impacts it was determined that this location is the preferred to allow for operation flexibility, allow for connections to the Kensico City Tunnel and minimize construction costs and environmental impacts.

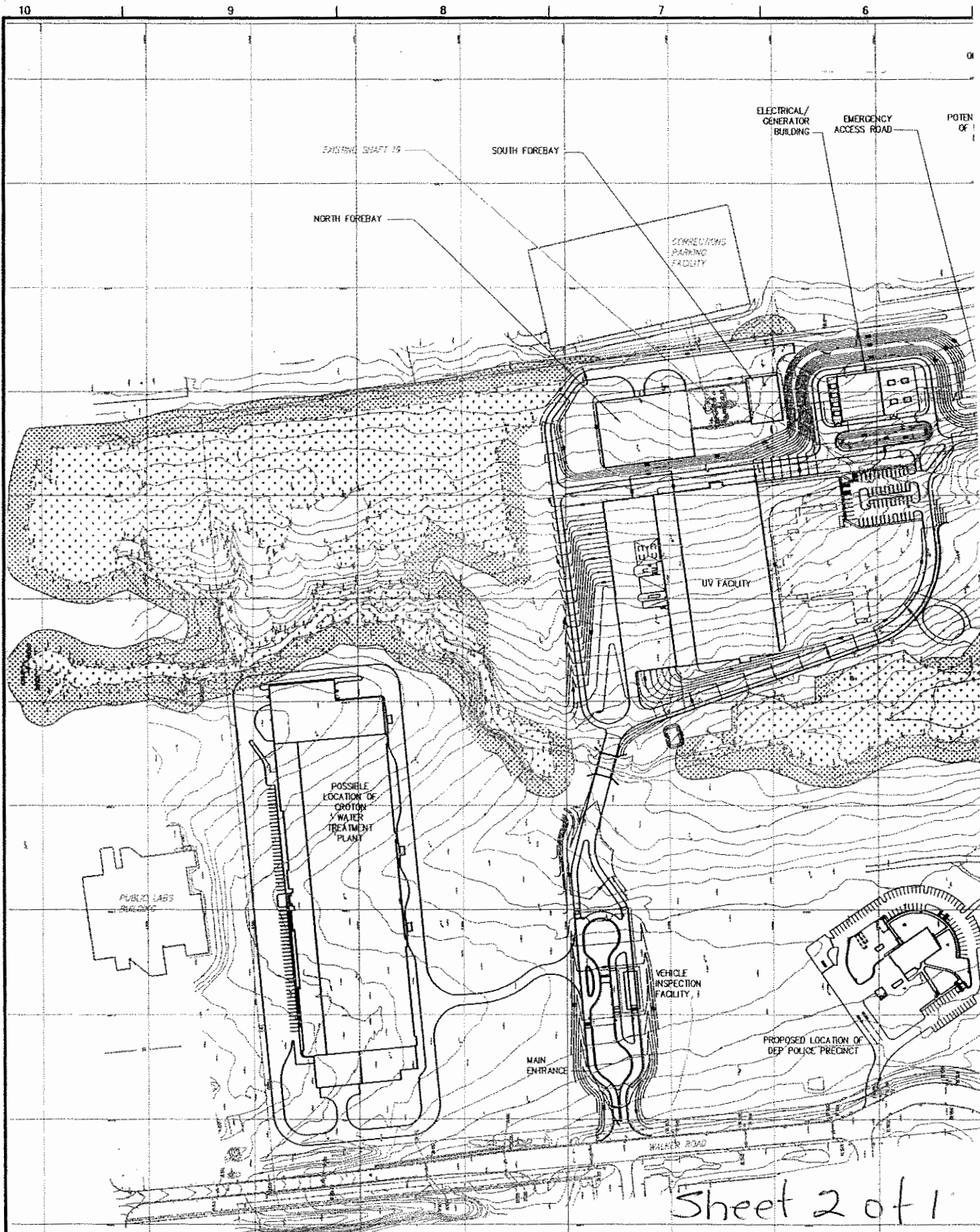
The stated purpose of UVDF is to improve and ensure high quality water for Catskill/Delaware Water Supply System.



Sheet 1 of 1

SUPERCEDES JUNE 2004-SUBMITTAL

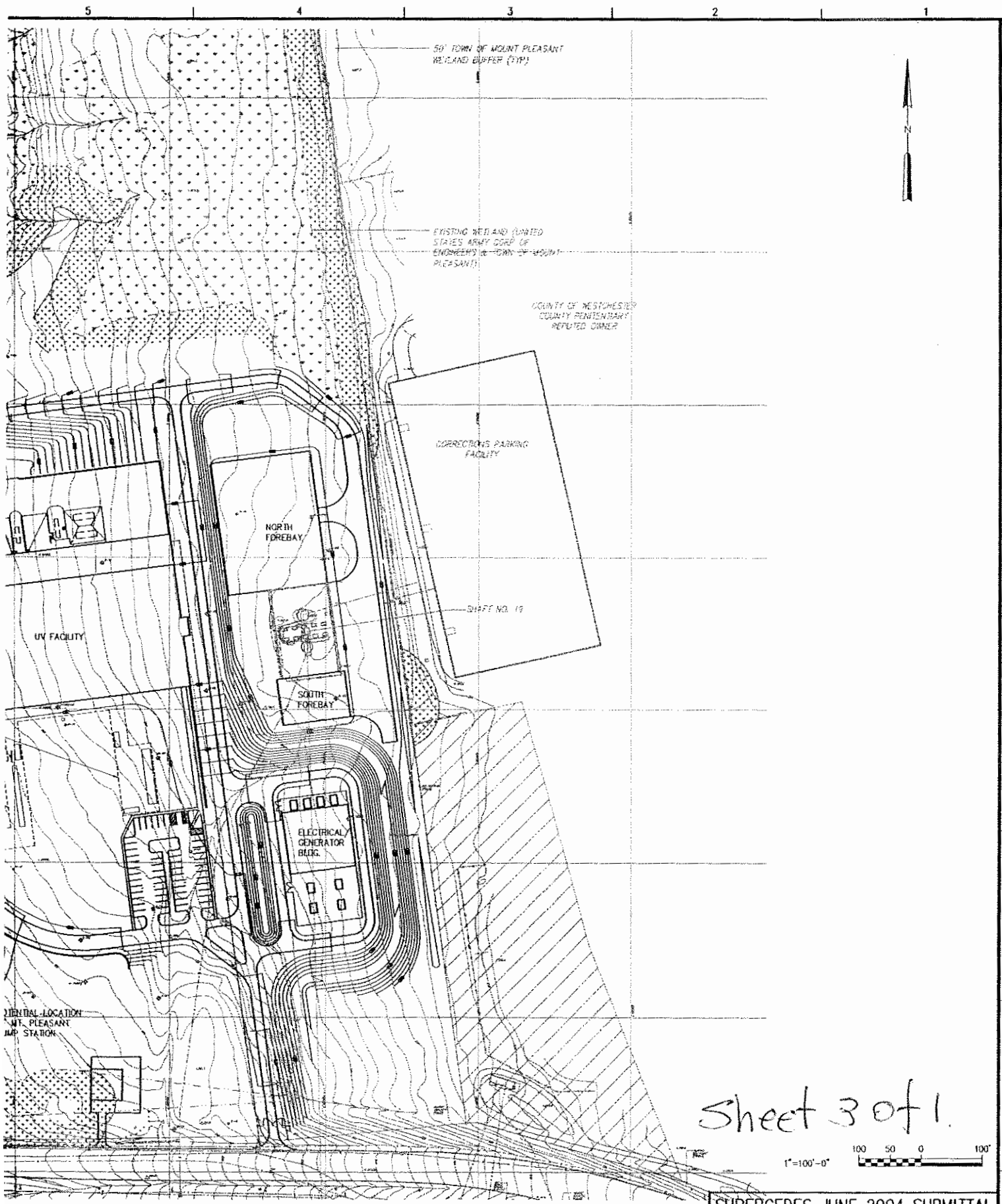
THE CITY OF NEW YORK _____ P.E. DISTRICT MANAGER _____ P.E. MED FACILITIES DESIGN		CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF ENVIRONMENTAL ENGINEERING DIVISION OF FACILITIES DESIGN WM-30 CATSKILL AND DELAWARE WATER TREATMENT ULTRAVIOLET LIGHT DISINFECTION FACILITY	ULTRAVIOLET LIGHT DISINFECTION FACILITY CONSTRUCTION SITE PLAN APPLICATION  EASTMEW SITE PLAN 1 of 2	DATE: OCTOBER 2004 DWG NO: MP-C-3 SHEET NO: 3 of 87 FILE NAME: MPCPL000
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Sheet 2 of 1


<b>MP-C-3</b> <b>2 of 2</b>		WARNING: IT IS A VIOLATION OF SECTION 2302 OF THE NEW YORK STATE CONSTRUCTION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY PLANS, SPECIFICATIONS, PLANS OR REPORTS TO WHICH THE SEAL OF A PROFESSIONAL ENGINEER HAS BEEN APPLIED, IF BY THIS ACTING THE SEAL OF A PROFESSIONAL ENGINEER IS ALTERED. ANY ALTERING ENGINEER SHALL ATTEST TO THE PLAN AND SEAL AND THE METHOD "ALTERED BY" FOLLOWED BY HIS SIGNATURE, THE DATE, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.		DESIGNED <u>JEH</u> DRAWN <u>DAG</u> CHECKED <u>NW1</u> SECT. CHIEF PROLONGER	SCALE 1"=150'-0"	P.E.	<b>HAZEN AND SAWYER</b> <b>CDM</b> Camp Dresser & McKee A Joint Venture	APPROVED FOR PRG CHIEF, WATER
NO.	DATE	ISSUED FOR	BY					

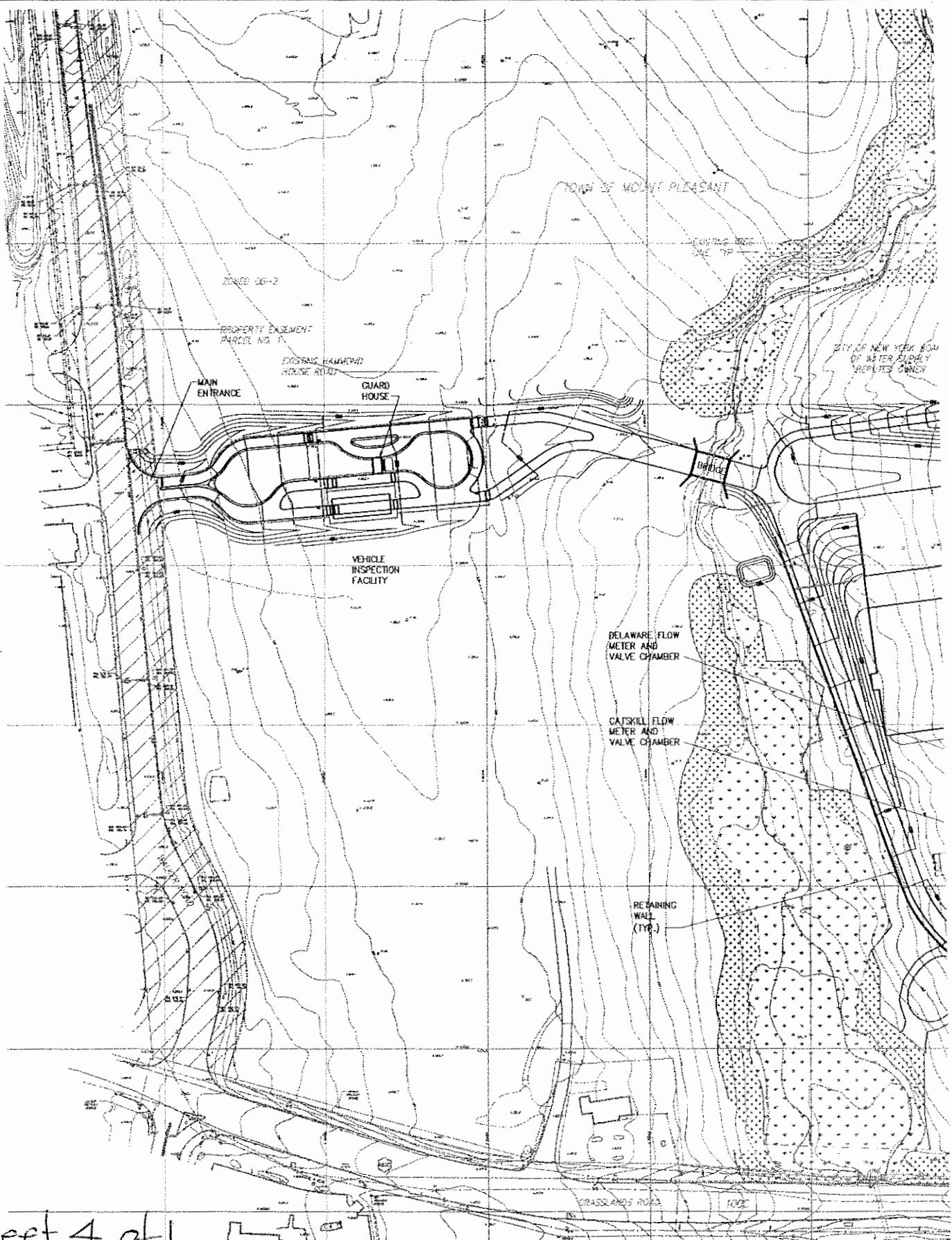




Sheet 3 of 1.

SUPERCEDES JUNE 2004 SUBMITTAL

THE CITY OF NEW YORK _____ P.E. CITY MANAGER _____ P.E. DESIGNED FACILITIES DESIGN		CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF ENVIRONMENTAL ENGINEERING DIVISION OF FACILITIES DESIGN WM-30 CATSKILL AND DELAWARE WATER TREATMENT ULTRAVIOLET LIGHT DISINFECTION FACILITY	ULTRAVIOLET LIGHT DISINFECTION FACILITY CONSTRUCTION SITE PLAN APPLICATION MOUNT PLEASANT PROPOSED SITE CONDITIONS <div style="text-align: right; font-size: 2em;">1 of 2</div>	DATE: <u>OCTOBER 2004</u> DWG NO: <u>MP-C-4</u> SHEET NO: <u>4</u> OF <u>87</u> FILE NAME: <u>MPCPL100</u>
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Sheet 4 of 1

MP-C-4  
2 of 2

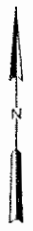
WARNING  
IT IS A VIOLATION OF SECTION 200-A OF  
THE NEW YORK STATE EDUCATION LAW  
FOR ANY PERSON, UNLESS ACTING UNDER  
THE SUPERVISION OF A LICENSED PROFESSIONAL  
ENGINEER, TO ALTER IN ANY MANNER,  
REPRODUCING, PLATS OR REPORTS TO  
WHICH THE SEAL OF A PROFESSIONAL ENGINEER  
HAS BEEN APPLIED, IF AN FIRM BEARING THE  
SEAL OF A PROFESSIONAL ENGINEER IS ALREADY  
THE ALTERNING ENGINEER SHALL AFFIX TO THE  
DRAWING HIS SEAL, AND THE DRAWING SHALL BE  
FOLLOWED BY HIS SIGNATURE, THE DATE, AND  
A SPECIFIC DESCRIPTION OF THE ALTERATION

DESIGNED JEH  
DRAWN DJC  
CHECKED NVH  
SECT. CHIEF  
PROJ. ENGR.

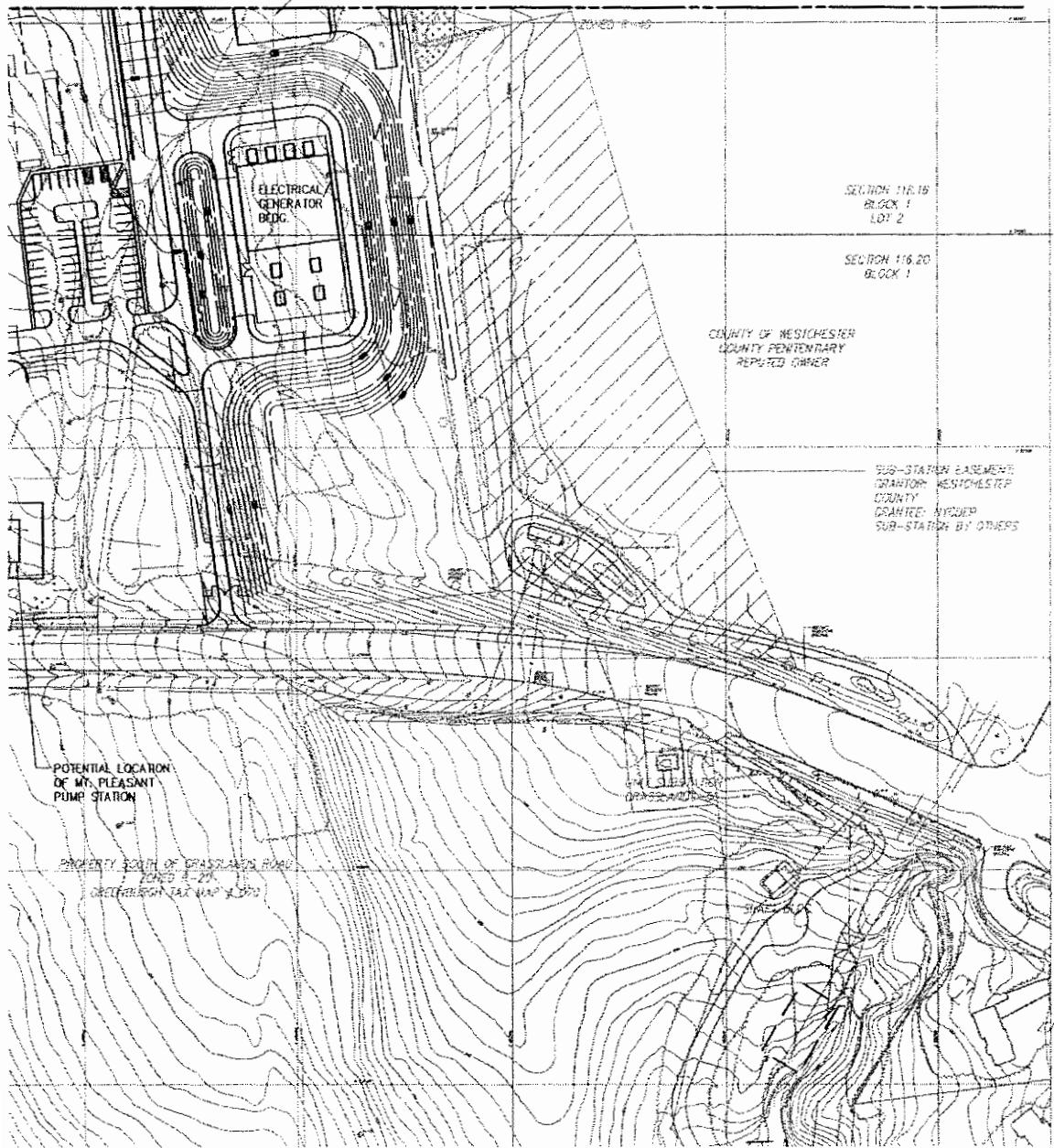
SCALE  
1"=100'-0"

**HAZEN AND SAWYER**  
**CDM** Camp Dresser & McKee  
A Joint Venture

APPROVED FOR  
PRC  
CHIEF, WATER



NO. MP-C-7



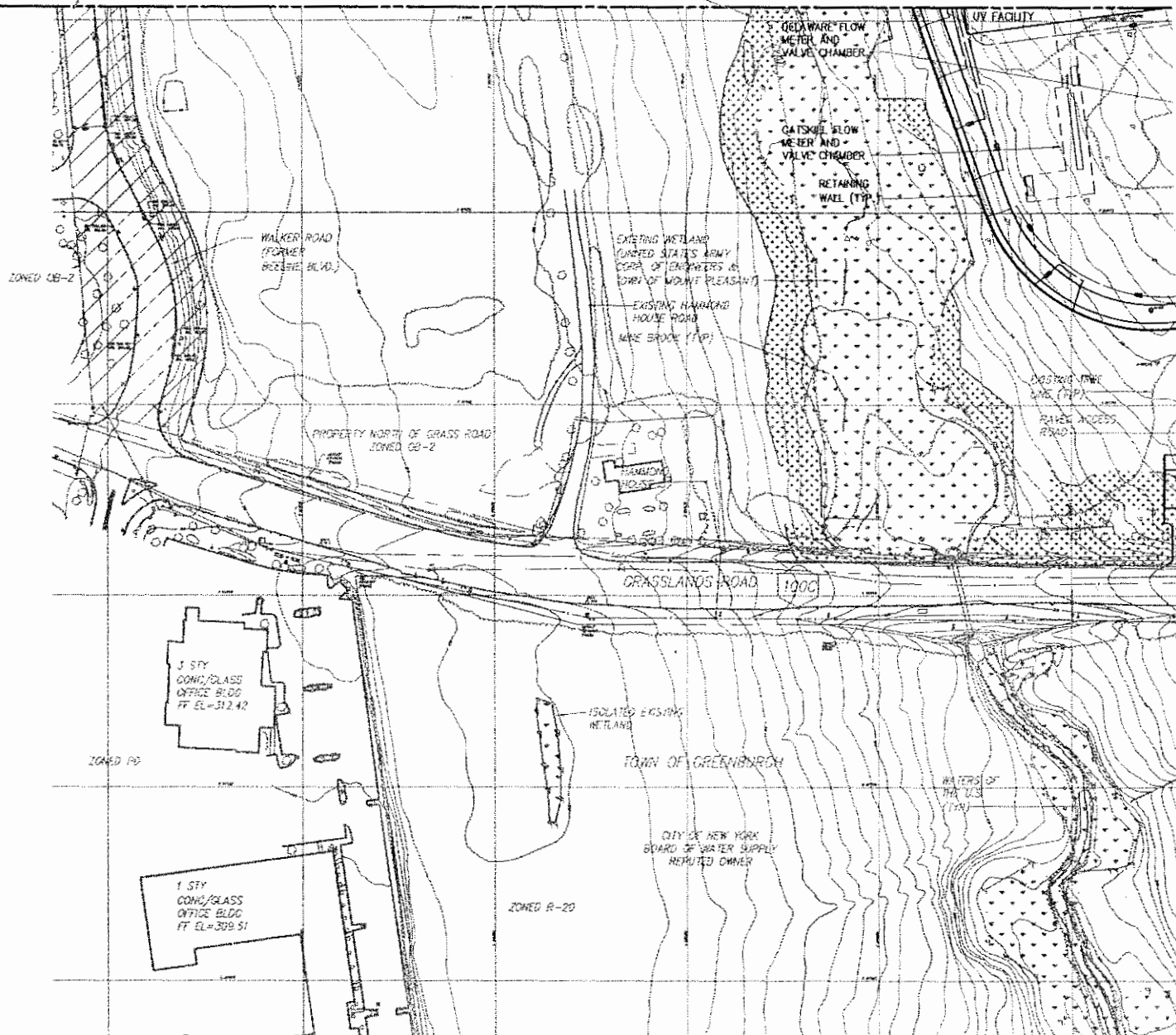
Sheet 5 of 1

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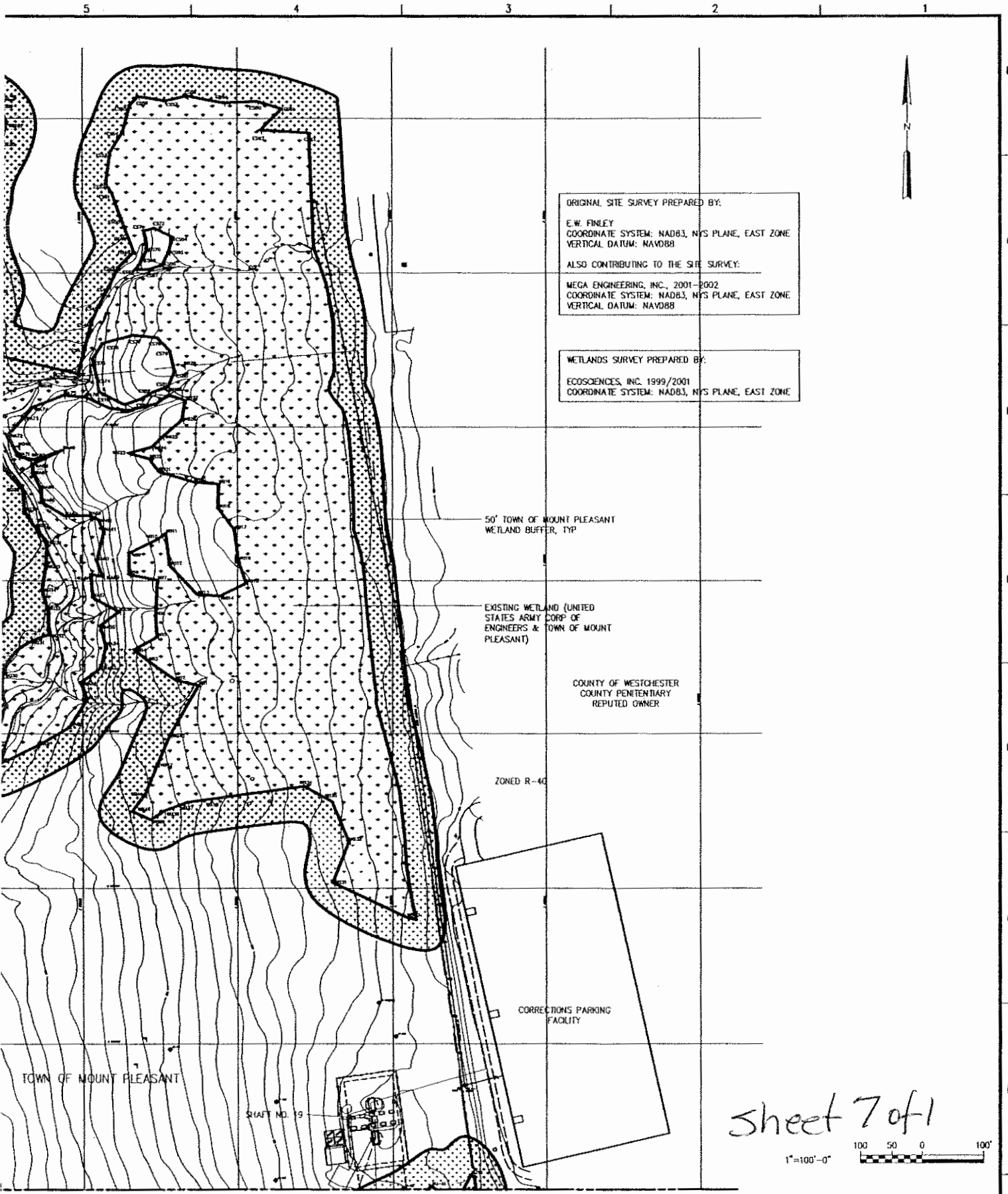


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Sheet 6 of 1

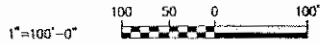
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ORIGINAL SITE SURVEY PREPARED BY:  
E.W. FINLEY  
COORDINATE SYSTEM: NAD83, NYS PLANE, EAST ZONE  
VERTICAL DATUM: NAVD88  
ALSO CONTRIBUTING TO THE SITE SURVEY:  
MEGA ENGINEERING, INC., 2001-2002  
COORDINATE SYSTEM: NAD83, NYS PLANE, EAST ZONE  
VERTICAL DATUM: NAVD88

WETLANDS SURVEY PREPARED BY:  
ECOSCIENCES, INC. 1999/2001  
COORDINATE SYSTEM: NAD83, NYS PLANE, EAST ZONE

Sheet 7 of 1



NO. MP-C-6

SUPERCEDES JUNE 2004 SUBMITTAL

<p>THE CITY OF NEW YORK P.E. EXT. MANAGER P.E. DESIGNED FACILITIES DESIGN</p>		<p>CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF ENVIRONMENTAL ENGINEERING DIVISION OF FACILITIES DESIGN WM-30 CATSKILL AND DELAWARE WATER TREATMENT ULTRAVIOLET LIGHT DISINFECTION FACILITY</p>	<p>ULTRAVIOLET LIGHT DISINFECTION FACILITY CONSTRUCTION SITE PLAN APPLICATION EXISTING SITE CONDITIONS 1 1 of 2</p>	<p>DATE: OCTOBER 2004 DWG NO: MP-C-5 SHEET NO: 5 of 87 FILE NAME: MPCPL001</p>
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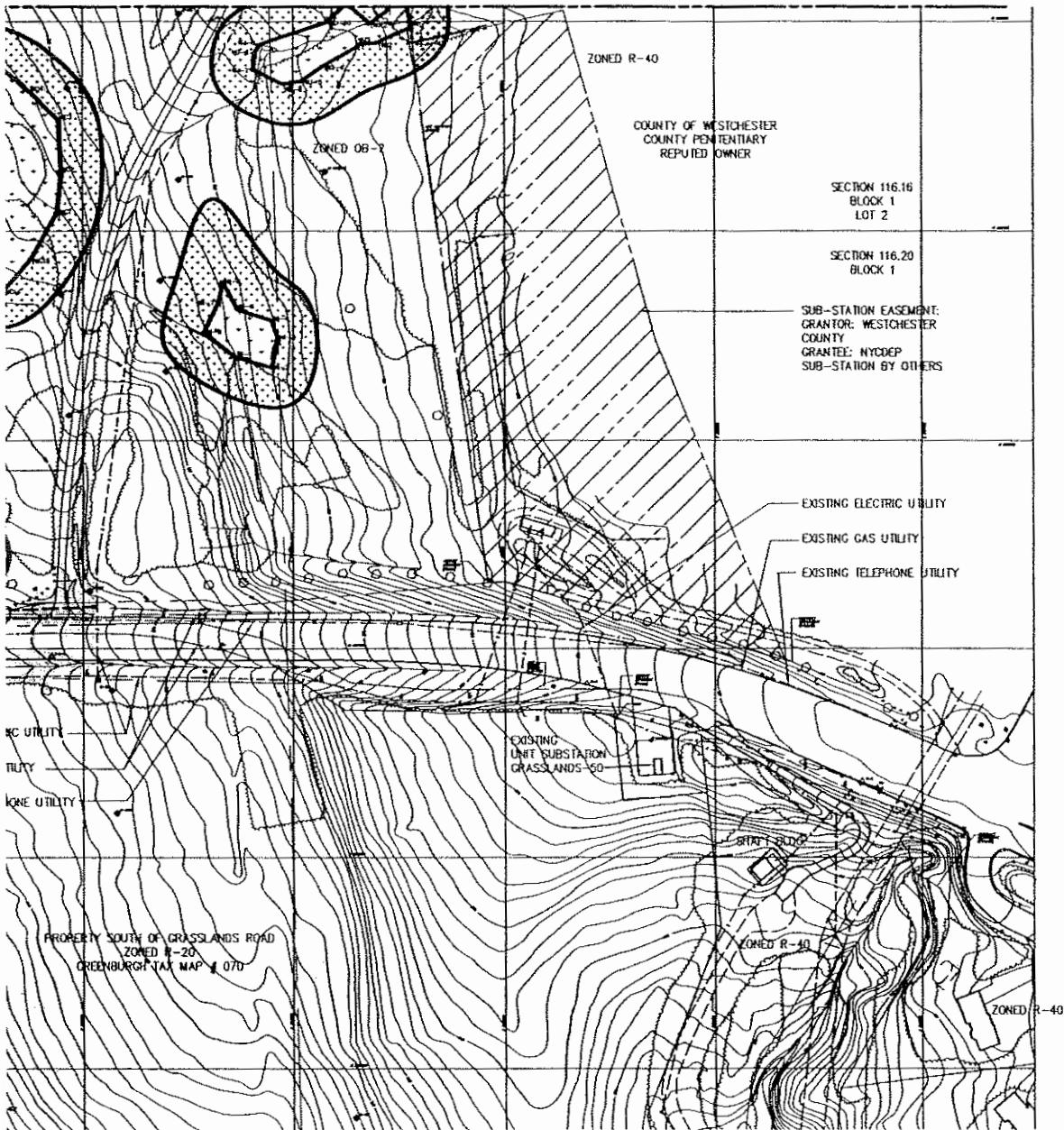


SHEET 8 of 1

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<b>MP-C-5</b> <b>2 of 2</b>		<small>WARNING:</small> THIS IS A VARIATION OF SECTION 220.1.2 OF THE NEW YORK STATE ENGINEERING LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALIAS IN ANY WAY PLANS, SPECIFICATIONS, PLATS OR REPORTS TO WHICH THE SEAL OF A PROFESSIONAL ENGINEER HAS BEEN APPLIED, IF HE FEELS NECESSARY THE SEAL OF A PROFESSIONAL ENGINEER IS NECESSARY, THE ALIEN ENGINEER SHALL FIRST TO THE FROM HIS SEAL AND THE SIGNATURE "ALTERED BY" FOLLOWED BY HIS SIGNATURE, THE DATE, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.	DESIGNED <u>JH</u> DRAWN <u>DJC</u> CHECKED <u>NVJ</u> SECT. CHIEF _____ PROJ. ENGR. _____	SCALE 1"=100'-0"	<b>HAZEN AND SAWYER</b> <b>CDM</b> Camp Dresser & McKee A Joint Venture	APPROVED FOR _____ PROJ _____ CHIEF, WATER _____
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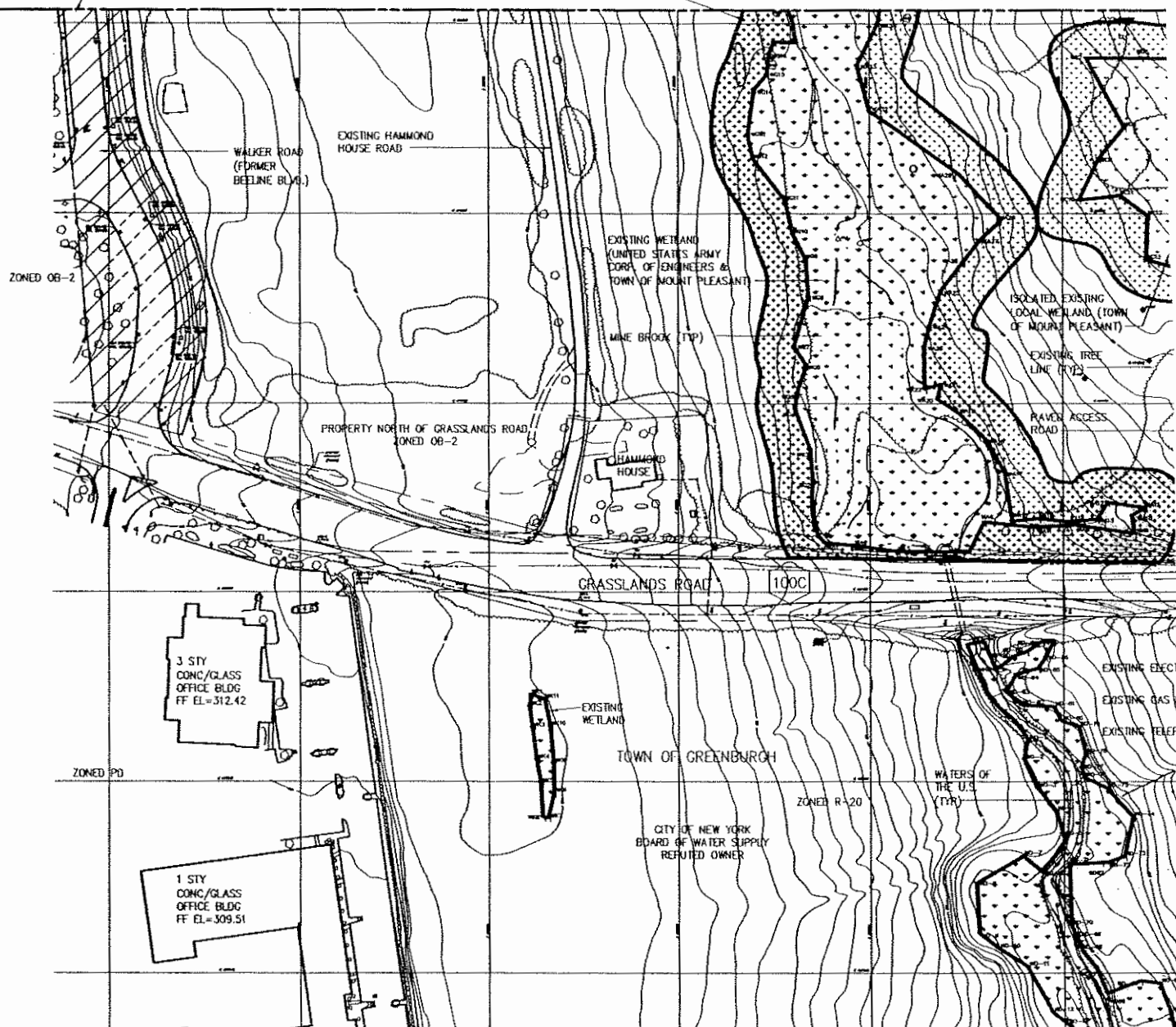


Sheet 9 of 1

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<p>THE CITY OF NEW YORK PROJECT MANAGER P.E. DESIGNED FACILITIES DESIGN</p>	<p>NEW YORK CITY DEPARTMENT OF <b>DEP</b> ENVIRONMENTAL PROTECTION</p>	<p>CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF ENVIRONMENTAL ENGINEERING DIVISION OF FACILITIES DESIGN WM-30 CATSKILL AND DELAWARE WATER TREATMENT ULTRAVIOLET LIGHT DISINFECTION FACILITY</p>	<p>ULTRAVIOLET LIGHT DISINFECTION FACILITY CONSTRUCTION SITE PLAN APPLICATION  EXISTING SITE CONDITIONS 2 1 of 2</p>	<p>DATE: OCTOBER 2004 DWG NO: MP-C-6 SHEET NO: 6 of 87 FILE NAME: MPCPL002</p>
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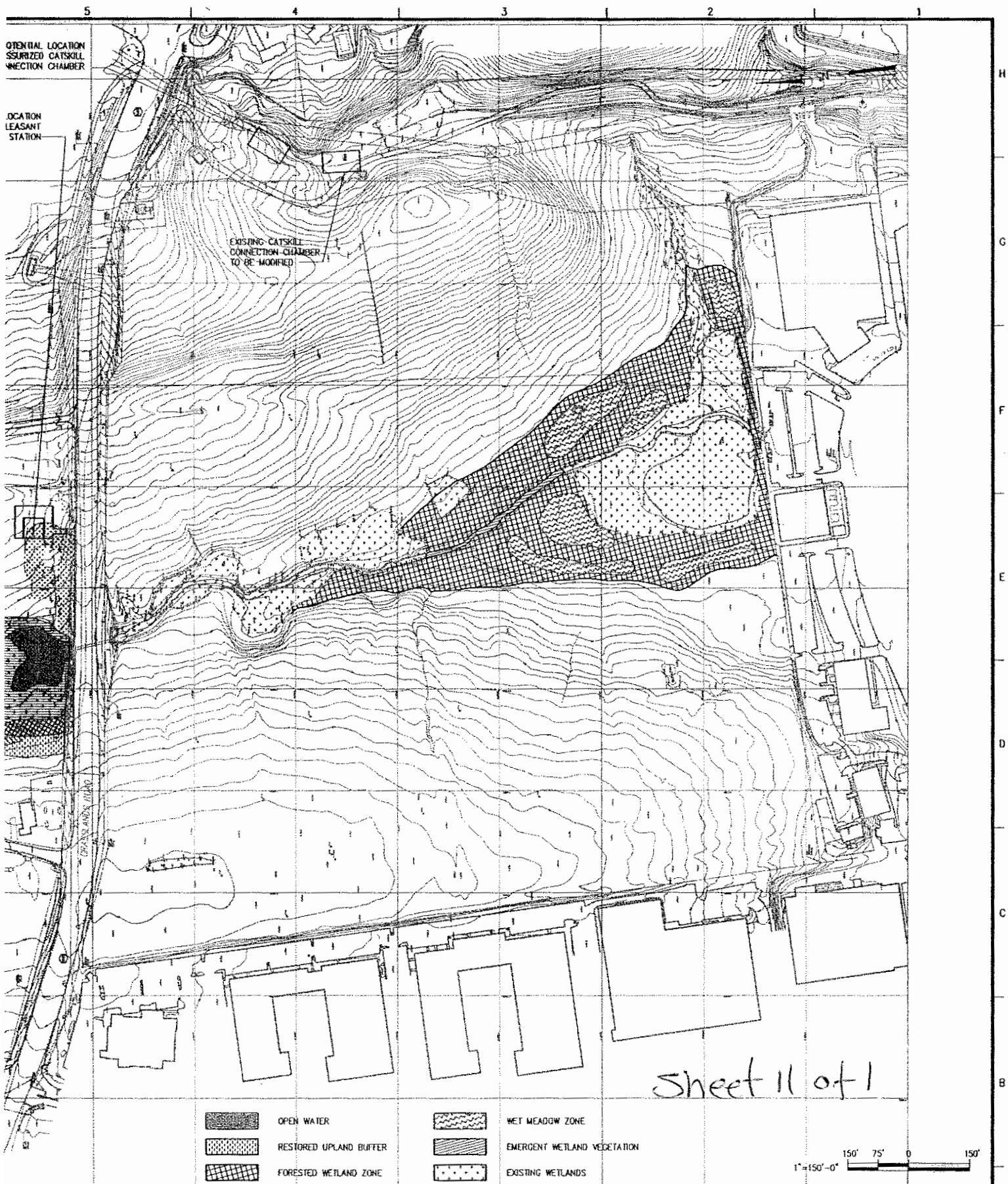
MATCHLINE FOR CONTINUATION SEE DWG.



Sheet 10 of 1.

<div style="text-align: center;"> <b>MP-C-6</b>  <b>2 of 2</b> </div>		<p style="text-align: center;"><b>WARNING</b></p> <p>IT IS A VIOLATION OF SECTION 7005.01 OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE AUTHORITY OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER IN ANY MANNER, SPECIFICATIONS, PLANS OR RECORDS TO WHICH THE SEAL OF A PROFESSIONAL ENGINEER HAS BEEN AFFIXED OR TO SIGN ANY SEAL OF A PROFESSIONAL ENGINEER AS ALTERNATE ENGINEER. ANY PERSON WHO VIOLATES THIS SECTION SHALL BE SUBJECT TO PENALTY AND THE VIOLATION SHALL BE A SPECIFIC VIOLATION OF THE EDUCATION LAW.</p>		DESIGNED <u>          JH          </u> DRAWN <u>          BUC          </u> CHECKED <u>          NWH          </u> SECT. CHIEF <u>                    </u> PROJ. ENGR. <u>                    </u>		SCALE <u>          1"=100'-0"          </u> <u>  </u> P.E.		<div style="text-align: center;"> <b>HAZEN AND SAWYER</b>  <b>CDM</b> Camp Dresser &amp; McKee          A Joint Venture       </div>		APPROVED FOR <u>                                    </u> PROJ. <u>                                    </u> <u>  </u> CHIEF, WATER	
NO.	DATE	ISSUED FOR	BY								

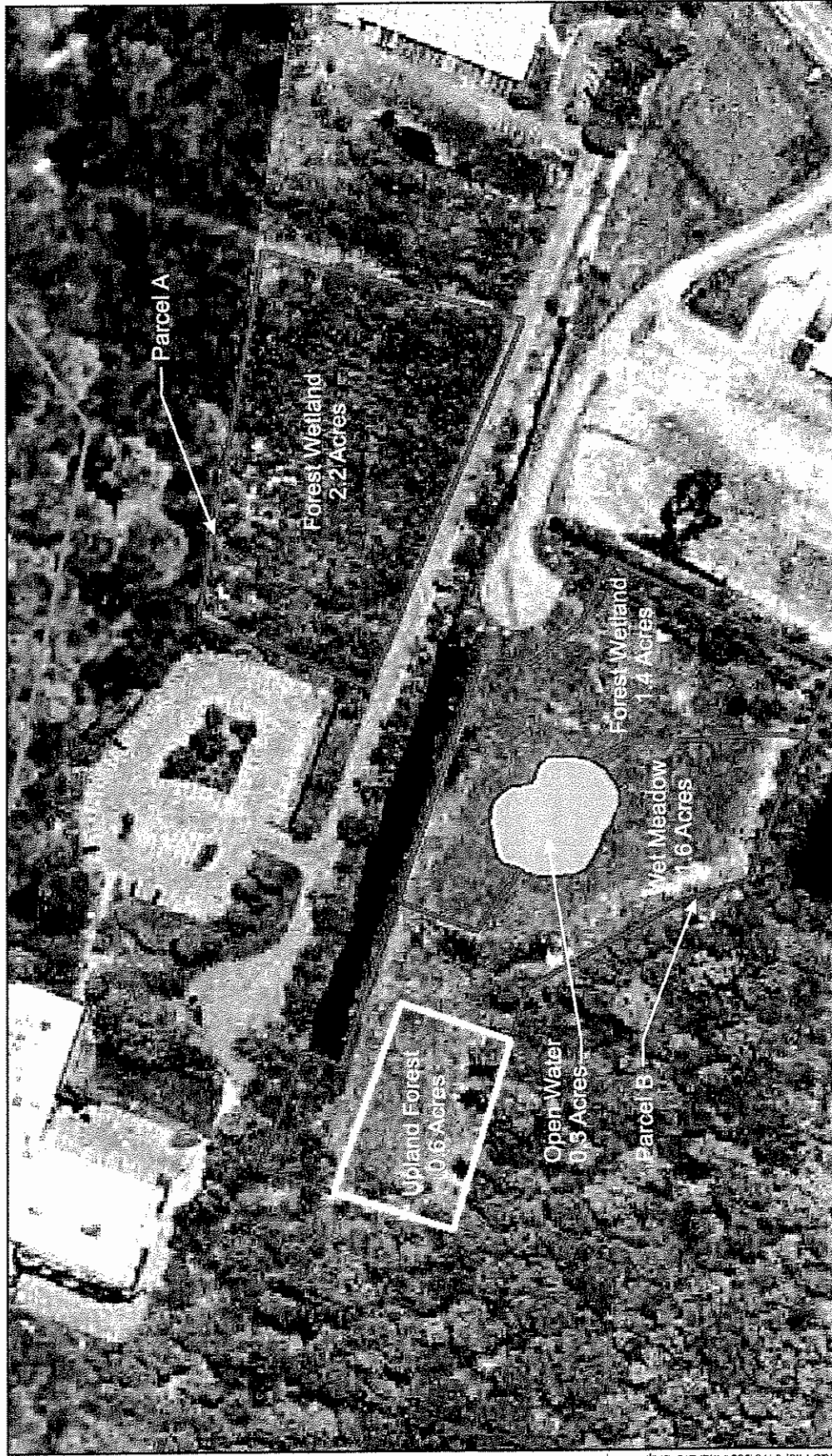






Sheet 12 of 1

<b>MP-C-46</b> <b>2 of 2</b>		<small>WARNING:</small> IT IS A VIOLATION OF SECTION 100.1 OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER IN ANY MANNER, SPECIFICATIONS, PLANS OR REPORTS IN WHICH THE SEAL OF A PROFESSIONAL ENGINEER HAS BEEN APPLIED. IF AN ENGINEER HAS SEAL OF A PROFESSIONAL ENGINEER IN ALTERNATE, THE ALTERNATE ENGINEER SHALL SIGN TO THE PLAN HIS SEAL AND THE WORDS "SEALING BY" FOLLOWED BY HIS SIGNATURE. THE DATE AND A SPECIFIC DESCRIPTION OF THE ALTERNATE.		DESIGNED <u>JEL</u> DRAWN <u>DJC</u> CHECKED <u>NMI</u> SECT. CHIEF _____ PROJ. ENGR. _____	SCALE 1"=150'-0"	<b>HAZEN AND SAWYER</b> <b>CDM</b> Camp Dresser & McKee A Joint Venture	APPROVED BY _____ P.E. CHIEF, WAT
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Sheet 13 of 1

## Off-Site Reforestation and Wetland Mitigation Town of North Castle

Catskill/Delaware UV Facility

Figure 6.1-2

**TABLE 6.1-17. MOUNT PLEASANT WETLAND MITIGATION PLANT SCHEDULE SUMMARY**

**Forested Wetland Zone (0.2 acres)**

Canopy Trees	Typical Species	Red Maple, Green Ash, Pin Oak, Yellow Birch, Sweet Gum, Swamp White Oak
	Density	100 trees/acre (20' o.c.)
	Size	1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
	Quantity	20
Understory Trees	Typical Species	Ironwood, Shadblow, Alternate-leaved Dogwood, American Hornbeam, Pussy Willow
	Density	50 trees/acre (30' o.c.)
	Size	8'-10'
	Quantity	10
Shrubs	Typical Species	Witch Hazel, Spice Bush, Arrowwood Viburnum, Red-panicked Dogwood, Hardhack Spirea
	Density	675 plants/acre (8' o.c.)
	Size	from 18"-24" to 3'-4'
	Quantity	135
Herbaceous	Typical Species	Woodland Aster, Joe-Pye Weed, Sensitive Fern, Boneset, False Solomon's Seal
	Density	2,025 plants/acre (3X shrub density)
	Size	1 qt. Container
	Quantity	400

**Restored Upland Buffer Zone (0.4 acres)**

Canopy Trees	Typical Species	Red Maple, American Beech, Red Oak, Tulip Poplar, White Ash
	Density	100 trees/acre (20' o.c.)
	Size	1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
	Quantity	40
Understory Trees	Typical Species	Shadblow, American Hornbeam, Alternate-leaved Dogwood, American Holly, Blackhaw Viburnum
	Density	50 trees/acre (30' o.c.)
	Size	8'-10'
	Quantity	20
Shrubs	Typical Species	Black Chokeberry, American Filbert, Atlantic Leatherwood, Carolina Rose, Arrowwood Viburnum
	Density	675 plants/acre (8' o.c.)
	Size	from 18"-24" to 3'-4'
	Quantity	270
Herbaceous	Typical Species	White Baneberry, Jack in the Pulpit, Woodland Aster, White Snakeroot, Mayapple, Scented Goldenrod
	Density	2,025 plants/acre (3X shrub density)
	Size	1 qt. Container
	Quantity	800

**Emergent Wetland Zone (0.8 acres)**

Herbaceous	Typical Species	Soft Rush, Arrow Arum, Softstem Bulrush, Blueflag, Pickerelweed
	Density	19,600 plants/acre (1.5' o.c.)
	Size	1 qt. Container
	Quantity	15,680

**Open Water (0.4 acres)**

Herbaceous	Typical Species	Spatterdock, Fragrant White Water Lily
	Density	43,250 plants/acre (1.0' o.c.)
	Size	1 qt. Container
	Quantity	17,300

**TABLE 6.1-19. GREENBURGH WETLAND MITIGATION PLANT SCHEDULE SUMMARY**

**Forested Wetland Zone (4.6 acres)**

Canopy Trees	Typical Species	Red Maple, Green Ash, Pin Oak, Yellow Birch, Swamp White Oak
	Density	150 trees/acre (17' o.c.)
	Size	1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
	Quantity	700
Understory Trees	Typical Species	Ironwood, Shadblow, Alternate-leaved Dogwood, American Hornbeam, Pussy Willow
	Density	50 trees/acre (30' o.c.)
	Size	8'-10'
	Quantity	225
Shrubs	Typical Species	Witch Hazel, Spice Bush, Arrowwood Viburnum, Red-panicked Dogwood, Hardhack Spirea
	Density	675 plants/acre (8' o.c.)
	Size	from 18"-24" to 3'-4'
	Quantity	3,100
Herbaceous	Typical Species	Woodland Aster, Joe-Pye Weed, Sensitive Fern, Boneset, False Solomon's Seal
	Density	2,025 plants/acre (3X shrub density)
	Size	1 qt. Container
	Quantity	9,300

**Restored Upland Forest Zone (0.8 acres)**

Canopy Trees	Typical Species	Red Maple, American Beech, Red Oak, Tulip Poplar, White Ash
	Density	150 trees/acre (17' o.c.)
	Size	1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
	Quantity	120
Understory Trees	Typical Species	Shadblow, American Hornbeam, Alternate-leaved Dogwood, American Holly, Blackhaw Viburnum
	Density	50 trees/acre (30' o.c.)
	Size	8'-10'
	Quantity	40
Shrubs	Typical Species	Black Chokeberry, American Filbert, Atlantic Leatherwood, Carolina Rose, Arrowwood Viburnum
	Density	675 plants/acre (8' o.c.)
	Size	from 18"-24" to 3'-4'
	Quantity	550
Herbaceous	Typical Species	White Baneberry, Jack in the Pulpit, Woodland Aster, White Snakeroot, Mayapple, Scented Goldenrod
	Density	2,025 plants/acre (3X shrub density)
	Size	1 qt. Container
	Quantity	1,600

**Wet Meadow Zone (1.4 acres)**

Shrubs	Typical Species	Common Alder, Silky Dogwood, Common Winterberry, Swamp Rose, Northern Blackberry
	Density	1,225 plants/acre (6' o.c.)
	Size	from 18"-24" to 3'-4'
	Quantity	1,700
Herbaceous	Typical Species	Big Blue Stem, Swamp Milkweed, Hyssop-leaved Boneset, Cinnamon Fern, Switchgrass
	Density	3,675 plants/acre (3X shrub density)
	Size	1 qt. Container
	Quantity	5,145

**Emergent Wetland Zone (0.1 acres)**

Herbaceous	Typical Species	Soft Rush, Arrow Arum, Softstem Bulrush, Blueflag, Pickerelweed
	Density	19,600 plants/acre (1.5' o.c.)
	Size	1 qt. Container
	Quantity	2,000

Sheet 15 of 17



TABLE 6.1-20. NORTH CASTLE (PARCEL A) WETLAND MITIGATION PLANT SCHEDULE SUMMARY

**Forested Wetland Zone (2.2 acres)**

Canopy Trees	Typical Species	Red Maple, Green Ash, Pin Oak, Yellow Birch, American Elm, Swamp White Oak
Density		65 trees/acre (25' o.c.)
Size		1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
Quantity		145

Understory Trees	Typical Species	Ironwood, Alternate-leaved Dogwood, American Hornbeam, Pussy Willow, Black Gum
Density		35 trees/acre (35' o.c.)
Size		8'-10'
Quantity		75

Shrubs	Typical Species	Witch Hazel, Spice Bush, Arrowwood Viburnum, Red-panicked Dogwood, Hardhack Spirea
Density		675 plants/acre (8' o.c.)
Size		from 18"-24" to 3'-4'
Quantity		1,500

Herbaceous	Typical Species	Woodland Aster, Joe-Pye Weed, Sensitive Fern, Boneset, False Solomon's Seal
Density		2,025 plants/acre (3X shrub density)
Size		1 qt. Container
Quantity		4,450

Sheet 16 of 17

**TABLE 6.1-21. NORTH CASTLE (PARCEL B) WETLAND MITIGATION PLANT SCHEDULE SUMMARY**

**Forested Wetland Zone (1.4 acres)**

Canopy Trees Typical Species	Red Maple, Green Ash, Pin Oak, Yellow Birch, Sweet Gum, Swamp White Oak
Density	65 trees/acre (25' o.c.)
Size	1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
Quantity	90
Understory Trees Typical Species	Ironwood, Shadblow, Alternate-leaved Dogwood, American Hornbeam, Pussy Willow
Density	35 trees/acre (35' o.c.)
Size	8'-10'
Quantity	50
Shrubs Typical Species	Witch Hazel, Spice Bush, Arrowwood Viburnum, Red-panicked Dogwood, Hardhack Spirea
Density	675 plants/acre (8' o.c.)
Size	from 18"-24" to 3'-4'
Quantity	950
Herbaceous Typical Species	Woodland Aster, Joe-Pye Weed, Sensitive Fern, Boneset, False Solomon's Seal
Density	2,025 plants/acre (3X shrub density)
Size	1 qt. Container
Quantity	2,850

**Upland Forest Zone (0.6 acres)**

Canopy Trees Typical Species	Red Maple, American Beech, Red Oak, Tulip Poplar, White Ash
Density	65 trees/acre (25' o.c.)
Size	1.5"-2" caliper, 6'-8' whip, 4'-6' whip, 2'-4' whip
Quantity	40
Understory Trees Typical Species	Shadblow, American Hornbeam, Alternate-leaved Dogwood, American Holly, Blackhaw Viburnum
Density	35 trees/acre (35' o.c.)
Size	8'-10'
Quantity	20
Shrubs Typical Species	Black Chokeberry, American Filbert, Atlantic Leatherwood, Carolina Rose, Arrowwood Viburnum
Density	675 plants/acre (8' o.c.)
Size	from 18"-24" to 3'-4'
Quantity	400
Herbaceous Typical Species	White Baneberry, Jack in the Pulpit, Woodland Aster, White Snakeroot, Mayapple, Scented Goldenrod
Density	2,025 plants/acre (3X shrub density)
Size	1 qt. Container
Quantity	1,200

**Wet Meadow Zone (1.6 acres)**

Shrubs Typical Species	Buttonbush, Common Alder, Silky Dogwood, Common Winterberry, Northern Blackberry
Density	1,225 plants/acre (6' o.c.)
Size	from 18"-24" to 3'-4'
Quantity	1,950
Herbaceous Typical Species	Big Blue Stem, Swamp Milkweed, Hyssop-leaved Boneset, Cinnamon Fern, Switchgrass
Density	3,675 plants/acre (3X shrub density)
Size	1 qt. Container
Quantity	5,850

**Open Water (0.3 acres)**

Herbaceous Typical Species	Spatterdock, Fragrant White Water Lily
Density	43, 250 plants/acre (1.0' o.c.)
Size	1 qt. Container
Quantity	12,975

Sheet 17 of 17